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(51) INTL.CL.⁵ C09K-003/00; C01G-011/24; C01G-011/36 ,

(19) (CA) **APPLICATION FOR CANADIAN PATENT** (12)

(54) De-Icer Composition "Marina"

(72) Benditkis, Rafail - Canada ;

(73) Same as inventor

(57) 1 Claim

Notice: The specification contained herein as filed

Canada

CCA 3254 (10-89) 41

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File: DWPI

Mar 18, 1993

DERWENT-ACC-NO: 1993-175894

DERWENT-WEEK: 199322

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TITLE: Deicer compsn. for e.g. icy roads - contains calcium chloride plus calcium nitrate and nitrite as anticorrosive

INVENTOR: BENDITKIS, R

PATENT-ASSIGNEE:

ASSIGNEE

CODE

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BENDI

PRIORITY-DATA: 1991CA-2051615 (September 17, 1991)

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PATENT-FAMILY:

PUB-NO

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LANGUAGE

PAGES

MAIN-IPC



CA 2051615 A

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DESCRIPTOR

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September 17, 1991

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INT-CL (IPC): C01G 11/24; C01G 11/36; C09K 3/00

ABSTRACTED-PUB-NO: CA 2051615A

BASIC-ABSTRACT:

Deicer compsn. (I) contains 60-98% CaCl₂ and 2-40% Ca(NO₃)₂ plus Ca(NO₂)₂.

USE/ADVANTAGE - (I) is applied to highways to melt snow and ice. Presence of Ca(NO₃)₂ plus Ca(NO₂)₂ in (I) reduces corrosion of vehicles, storm sewers, underground communication lines etc (I) are as efficient as conventional NaCl/sand mixts.

In an example, CaCl₂ soln. is evaporated to 68% concn. at 160-180 deg. C and 700kg fed to a mixer also supplied with a 300kg mixt. of Ca(NO₃)₂ plus Ca(NO₂)₂ (typically in wt. ratio 9:1-1:9). Mixing is at 150-170 deg. for 10-15 mins. Resulting slurry is dried, cooled and packed into bags as deicer compsn.

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: DEICER COMPOSITION ICE ROAD CONTAIN CALCIUM CHLORIDE PLUS CALCIUM NITRATE NITRIT ANTICORROSIVE

DERWENT-CLASS: E33 G04 M14

CPI-CODES: E34-D02; E34-D03; G04-B05; M14-F02;

CHEMICAL-CODES:

The invention relates to the de-icer compositions, which allow to fight snow and ice during the winter season.

The main component is calcium chloride which had been well known and widely used for a number of years to fight snow and ice on the roads. Lately the use of calcium chloride had become especially important in view of the high speed highway road system.

To ensure a normal flow of high volume of traffic, the roads that this traffic is using should be ice-free.

Calcium chloride had been used as well in the concrete mix solutions to prevent freezing of the mix at low temperatures while also increasing the speed of the hardening process.

Even though these are just few of the examples of commercial use of calcium chloride, the quantities of calcium chloride used for these purposes are immense.

Currently during the winter season to fight the snow and ice on the roads they are using a mix of salt and sand.

This mix has a very strong corrosion effect on all kinds of vehicles as well as on the road surface, underground storm sewers, underground parking garages, underground communication lines, while also having a very negative effect on the environment.

The de-icer composition "Marina" we are now offering possesses the same melting power against ice and snow on the roads as the salt and sand mix, with substantial difference being the fact that the de-icer composition "Marina" is absolutely corrosion-safe for all vehicles, the road surface, underground storm sewers, underground parking garages, underground communication lines, and since the de-icer composition "Marina" is absolutely non-toxic, it doesn't have any negative effect on the environment.

The described above characteristics prove the use of the de-icer composition "Marina" to be beneficial and economically - feasible to fight ice and snow on the roads as well as in construction industry.

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The purpose of invention - creation of de-icer composition free of corrosion damaging effects.

It is achieved by adding to the de-icer composition a mix of calcium nitrite and calcium nitrate (calcium nitrite nitrate) in the amount of 2 - 40%.

The composition of de-icer "Marina" (in %) is as follows:

| | | |
|--|---|---------|
| A mix of calcium nitrite and calcium nitrate (calcium nitrite nitrate) | - | 2 - 40 |
| Calcium chloride or its mix with sodium chloride | - | 98 - 60 |

The process of preparation of the de-icer composition "Marina"

The solution of calcium chloride or its mixture with sodium chloride is being evaporated to the concentration of 68% at a temperature of 160°C - 180°C, and in the quantity of 700 Kg, recalculating for 100% calcium chloride or its mixture with sodium chloride, being forwarded to a mixing machine. In this same mixing machine through a feed control device 300 Kg of solid mix of calcium nitrite and calcium nitrate is being added in a proportion 9:1 - 1:9 and thoroughly mixed at a temperature 150°C - 170°C during 10 - 15 minutes.

The resulted slurry is then crystallized, dried, cooled, and the ready product is packaged into the moisture - resistant bags.

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ABSTRACT

Offering a new composition of De-icer based on calcium chloride or a mixture of calcium chloride with sodium chloride, to which mixture is added a mix of calcium nitrite and calcium nitrate in the amount of 2 - 40% with a purpose of preventing the corrosion of metals.

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The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

De-icer composition containing calcium chloride or its mixture with sodium chloride, which differentiates by the fact that in order to prevent the metall corrosion effect, a mix of calcium nitrite and calcium nitrate is being added to the mix in the amount 2 - 40%.